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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference ypp0310/019	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/002180	International filing date (day/month/year) 17 OCTOBER 2003 (17.10.2003)	Priority date (day/month/year) 17 OCTOBER 2002 (17.10.2002)
International Patent Classification (IPC) or national classification and IPC IPC7 B82B 3/00		
Applicant NEXEN NANO TECH CO., LTD et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.
- ☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).
- These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:
- I ☒ Basis of the report
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain documents cited
 - VII ☐ Certain defects in the international application
 - VIII ☐ Certain observations on the international application

Date of submission of the demand 14 MAY 2004 (14.05.2004)	Date of completion of this report 07 FEBRUARY 2005 (07.02.2005)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer JWA, Seung Kwan  Telephone No. 82-42-481-5560

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/002180

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☐ the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages _____, as originally filed
 pages _____, as amended (together with any statement) under Article 19
 pages _____, filed with the demand
 pages 40-43 _____, filed with the letter of 03/02/2005
- ☐ the drawings:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☒ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed," and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/002180

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-10	YES
	Claims	NO
Inventive step (IS)	Claims 1-10	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-10	YES
	Claims	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1= JP 2001-98430 A.

1. Claims 1-2 relate to ultra-fine fibrous nanocarbon characterized by stacking of carbon hexagonal planes with no hollow core therein, and claims 3-10 relate to a preparation method of the same.

2. D1 relates to micro carbon nanofiber of which the diameter is ranged from several to several hundred nanometers, and the length is about several microns.

3. Claims 1-2 do not differ from D1 in the technical field of ultra-fine fibrous nanocarbon comprising carbon hexagonal planes. However D1 does not disclose that ultra-fine fibrous nanocarbon comprises a stacking carbon structure, and its diameter is ranged from 3.5 to 79.0nm. And a person skilled in the art is not considered to readily derive the present claims 1-2 from the teaching of D1. In addition, claims 3-10 are not different from D1 in the method of manufacturing ultra-fine fibrous nanocarbon by inoculating a mixture of hydrocarbon and hydrogen into a metal catalyst. However, D1 does not disclose the method of manufacturing ultra-fine fibrous nanocarbon by using a metal catalyst including nickel which is prepared by oxidizing and deoxidizing carbon black impregnated with metal for catalyst, and a person skilled in the art is not considered to readily derive the present claims 3-10 from the teaching of D1.

4. Therefore, claims 1-10 meet the criteria set out in Article 33(2) and (3) PCT.